WHAT IS CLAIMED IS:

1. A communication method among a plurality of virtual local area networks (VLANs), each VLAN having a number of hosts, comprising:

broadcasting a first address resolution protocol (ARP) request packet transmitted from a source host of the number of hosts to a source VLAN of the plurality of VLANs;

transmitting a first ARP response packet, responding to the first ARP request packet, to the source host and broadcasting a second ARP request packet to a destination VLAN of the plurality of VLANs in which a destination host addressed by the first ARP request packet is included; and

receiving a second ARP response packet from the destination host and transmitting a unicast packet originating from the source host to the destination host using a media access control (MAC) address of the destination host that is included in the received second ARP response packet.

2. The communication method of claim 1, wherein the plurality of VLANs belong to the same Internet Protocol (IP) subnet, and the method further comprises configuring the plurality of VLANs by configuring a MAC table and a routing table so that the plurality of VLANs are allocated to the same IP subnet, a plurality of ports of a switching router are allocated to the plurality of VLANs, and the respective number of hosts included

in each of the plurality of VLANs are mapped to the corresponding allocated plurality of ports.

3. The communication method of claim 1, wherein broadcasting the first ARP request packet to the VLAN in which the source host is included, further comprises:

identifying the source VLAN, based on a MAC source address included in the first ARP request packet; and

broadcasting the first ARP request packet to a number of source ports of a switching router, which are allocated to the source VLAN.

4. The communication method of claim 3, wherein the number of source ports is variably determined in accordance with the number of hosts connected to one VLAN of the plurality of VLANs.

5. The communication method of claim 1, wherein broadcasting the second ARP request packet further comprises:

generating the first ARP response packet in response to the first ARP request packet;

transmitting the generated first ARP response packet to the source host;

generating the second ARP request packet for finding out the MAC address of the destination host identified by the first ARP request packet;

identifying the destination VLAN in which the destination host is included; and

broadcasting the second ARP request packet to all destination ports of a plurality of switching router ports allocated to the destination VLAN.

6. The communication method of claim 1, wherein the first ARP response packet comprises a destination address (DA) field representing the MAC address of the source host, a source address (SA) field representing the MAC address of a source port, of a switching router, mapped on the source host, a destination IP address (DI) field representing an IP address of the source host, and a source IP address (SI) field representing the IP address of the destination host.

7. The communication method of claim 1, wherein the second ARP request packet comprises a destination address (DA) field representing a broadcast MAC address, a source address (SA) field representing the MAC address of a source port, of a switching router, mapped on the destination host, a destination IP address (DI) field representing an IP address of the destination host, and a source IP address (SI) field representing the IP address of the source host.

8. The communication method of claim 5, wherein identifying the destination VLAN in which the destination host is included further comprises:

reading an IP address of the destination host from the first ARP request packet;

identifying a source port, of a switching router, mapped on the IP address of the destination host; and

identifying the source port allocated to the source VLAN.

9. The communication method of claim 1, wherein transmitting the unicast packet to the destination host further comprises:

receiving the second ARP response packet from the destination host;

storing the MAC address of the destination host included in the received second ARP response packet;

receiving a first unicast packet from the source host; and

generating a second unicast packet based on the first unicast packet and transmitting the second unicast packet to the destination host.

10. The communication method of claim 9, wherein the second ARP response packet comprises a source address (SA) field representing the MAC address of the destination host, a destination address (DA) field representing the MAC address of a port of a switching router that broadcast the second ARP request packet, a destination IP address (DI) field representing an IP address of the source host, and a source IP address (SI) field representing the IP address of the destination host.

11. The communication method of claim 1, wherein the unicast packet comprises a destination address (DA) field representing the MAC address of a port of a switching router that transmitted the first ARP response packet, a source address (SA) field representing the MAC address of the source host, a destination IP address (DI) field representing an IP address of the destination host, and a source IP address (SI) field representing the IP address of the source host.

12. The communication method of claim 9, wherein the second unicast packet comprises a destination address (DA) field representing the MAC address of the destination host, a source address (SA) field representing the MAC address of a corresponding port of a switching router connected to the destination host, a destination IP address (DI) field representing an IP address of the destination host, and a source IP address (SI) field representing the IP address of the source host.

13. A broadcast domain determining method for communications among a plurality of virtual local area network (VLANs) in the same Internet protocol (IP) subnet, comprising:

identifying a second VLAN of the plurality of VLANs which is included in the same IP subnet as a first VLAN containing a source host, if an address resolution protocol (ARP) request packet is received from the source host;

identifying all second VLAN ports of a number of ports connected to the second VLAN;

broadcasting the ARP request packet to all of the second VLAN ports;

identifying a destination port of the second VLAN ports in which a destination host of the ARP request packet is included; and

broadcasting the ARP request packet to the second VLAN connected to the destination port.

14. The method of claim 13, wherein identifying the destination port includes identifying the destination port based on an IP address of the destination host, which is represented in a destination IP address (DI) field of the ARP request packet.

15. A communication method among a plurality of virtual local area networks (VLANs) in the same Internet protocol (IP) subnet, comprising:

broadcasting an address resolution protocol (ARP) request packet to communicate with a destination host that belongs to the same IP subnet as a source host, but belongs to a different VLAN of the plurality of VLANs than the source host;

informing the source host of a media access control (MAC) address of a switching router, using a communication from the switching router provided in response to the ARP request packet;

obtaining the MAC address of the destination host by broadcasting the ARP request packet from the switching router to a second VLAN of the plurality of VLANs, in which the destination host is included;

transmitting to the switching router a first data packet to be transmitted to the destination host by the source host, via the switching router; and

transmitting the received first data packet from the switching router to the destination host using the MAC address of the destination host.

16. The communication method of claim 15, further comprising:

transmitting to the switching router a second data packet to be transmitted to the source host from the destination host, via the switching router; and

transmitting the second data packet from the switching router to the source host using the MAC address of the source host.

17. The communication method of claim 15, wherein the source host knows the MAC address of a corresponding port of the switching router to which the source host is connected, but does not know the MAC address of the destination host.

18. The communication method of claim 15, wherein the destination host knows the MAC address of a corresponding port of the switching router to which the destination host is connected, but does not know the MAC address of the source host.

19. A communication method among a plurality of networks in a subnet, comprising:

communicating a first message from a source host, within a first network of the plurality of networks, to a destination host, within a second network of the plurality of networks, by addressing the first message to a first intermediate address of an intermediary device, which supports communication among the plurality of networks;

receiving the first message with the intermediary device;

associating a destination proxy address, of the destination host, contained in the first message with a destination address of the destination host; and

communicating the first message from the intermediary device to the destination host by addressing the first message to the destination address.

20. The communication method of claim 19, further comprising:

communicating a second message from the destination host to the source host by addressing the second message to a second intermediate address of the intermediary device;

receiving the second message with the intermediary device;

associating a source proxy address, of the source host, contained in the second message with a source address of the source host; and

communicating the second message from the intermediary device to the source host by addressing the second message to the source address.

21. The communication method of claim 19, wherein the source host determines the first intermediate address using a method comprising:

associating, within the intermediary device, the destination proxy address with the first intermediate address;

broadcasting a first address resolution packet (ARP) request containing the destination proxy address and a global destination address from the source host to a number of first hosts sharing a first network, of the plurality of networks, with the source host;

responding to the first ARP request by sending a first ARP response from the intermediary device to the source host containing the first intermediate address, wherein

the intermediary device responds to the first ARP request due to the association between the destination proxy address, included within the first ARP request, and the first intermediate address.

22. The communication method of claim 21, wherein the intermediary device determines the destination address using a method comprising:

broadcasting a second address resolution packet (ARP) request containing the destination proxy address and the global destination address from the intermediary device to a number of second hosts sharing a second network, of the plurality of networks, with the destination host;

responding to the second ARP request by sending a second ARP response from the destination host to the intermediary device containing the destination address, wherein

the destination host responds to the second ARP request because the ARP request contains the destination proxy address.

23. The communication method of claim 21, wherein:

the plurality of networks include multiple virtual local area networks;

the subnet is an Internet Protocol (IP) subnet;

the first ARP request comprises a destination address field identifying a media access control (MAC) address of the global destination address, a source address field identifying the MAC address of the source host, a destination IP address field identifying an IP address of the destination host, and a source IP field identifying the IP address of the source host.

24. The communication method of claim 21, wherein:

the plurality of networks include multiple virtual local area networks;

the subnet is an Internet Protocol (IP) subnet;

the first ARP response comprises a destination address field identifying a media access control (MAC) address of the source host, a source address field identifying the MAC address of the intermediary device's first intermediate address, a destination IP address field identifying an IP address of the source host, and a source IP field identifying the IP address of the destination host.

25. The communication method of claim 22, wherein:

the plurality of networks include multiple virtual local area networks;

the subnet is an Internet Protocol (IP) subnet;

the second ARP request comprises a destination address field identifying a media access control (MAC) address of the global destination address, a source address field identifying the MAC address of the intermediary device's second intermediate address, a destination IP address field identifying an IP address of the destination host, and a source IP field identifying the IP address of the source host.

26. The communication method of claim 22, wherein:

the plurality of networks include multiple virtual local area networks;

the subnet is an Internet Protocol (IP) subnet;

the second ARP response comprises a destination address field identifying a media access control (MAC) address of the intermediary device's second intermediate address, a source address field identifying the MAC address of the destination host, a destination IP address field identifying an IP address of the source host, and a source IP field identifying the IP address of the destination host.

27. The communication method of claim 19, wherein:

the plurality of networks include multiple virtual local area networks;

the subnet is an Internet Protocol (IP) subnet;

the first message comprises a destination address field identifying a media access control (MAC) address of the intermediary device's first intermediate address, a source address field identifying the MAC address of the source host, a destination IP address field identifying an IP address of the destination host, and a source IP field identifying the IP address of the source host.

28. An improved communication system having a plurality of networks interconnected within a subnet by a switching router, wherein each network has a number of hosts, the improvement comprising:

a first address resolution means for providing a media access control (MAC) address of a first host, within a first network, to the switching router;

a second address resolution means for providing the first host with the MAC address of a first port that interconnects the switching router to the first network;

a third address resolution means for providing a second host with the MAC address of a second port that interconnects the switching router to the second network;

a fourth address resolution means for providing the switching router with the MAC address of the second host, wherein

the second, third, and fourth address resolution means operate in response to an operation of the first address resolution means, and

the first address resolution means is operated when the first host has a message to convey to the second host but the first host has neither the second hosts's MAC address nor

a MAC address of the switching router, which operates as a proxy for the second host's MAC address.